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October, 1938.

Accidents.

Carelessness always costly. Wisconsin Agriculturist & Farmer. v. 65, no. 15. July 16, 1938. p. 16. Illustrations.

Farm accidents. By J.C. Mohler. Northwest Farm Equipment Journal. v. 52, no. 8. August, 1938. p. 31-33. What causes them? How can they be prevented?

How to reduce farm accidents. By C.G. Chipchase. Pacific Rural Press. v. 135, no. 21. May 21, 1938. p. 583.

Let's cut down on farm accidents. Wisconsin Agriculturist & Farmer. v. 65, no. 17. August 13, 1938. p. 28. Illustrations.

Agricultural Engineering.

Bridging the gaps. By Leonard J. Fletcher. Agricultural Engineering. v. 19, no. 8. August, 1938. p. 343-347.

Yerkes points to new fields. Northwest Farm Equipment Journal. v. 52, no. 8. August, 1938. p. 18.

Agriculture.

Agricultural programs and the processing tax. Adapted from an address by Lawrence Myers, delivered in Philadelphia, Pa., April 28, 1938. Washington, U.S. Govt. print. off., 1938. 10p. U.S. Department of agriculture. Agricultural adjustment administration. General information series. G-87.

Crop production costs. By Harry G. Davis. Ferm Implement News. v. 57, no. 8. April 9, 1938. p. 60.

Farmers and the surplus problem. Adapted from... remarks by H.A. Wallace before the Conference of A.A.A. State committeemen...in Washington, D.C., August 11, 1938. Washington, U.S. Govt. print. off., 1938. 16p. U.S. Department of agriculture. Agricultural adjustment administration. General information series. G-88.

Fifty years in the service of agriculture, 1888-1938. Columbia, Missouri, 1938. 99p. University of Missouri. Agricultural experiment station. Bulletin 397.

Hints on dry land gardening. By M.J. Tinline and Erdman Braun. Ottawa, Can., 1938. 6 p. Dominion of Canada. Department of agriculture. Publication 619.

Agriculture.

- Reference on American colonial agriculture. By E.E. Edwards. Washington, D.C., 1938. 101 p. Mimeographed. U.S. Department of agriculture. Bibliographical contributions. No. 33.
- Report of the Knasas state board of agriculture, Division of water resources for quarter ending June, 1936, containing stream-flow data for period from October 1, 1928 to September 30, 1935. Topeka, Kansas state printing plant, 1937. 688 p.
- Role of land-grant college in governmental agricultural programs. Prepared by a Committee of faculty of Iowa state college. Ames, Iowa, 1938. 14p.
- Soils & men; Yearbook of agriculture 1938. Washington, U.S. Govt. print. off., 1938. 1232 p.
- Swedish contributions to the development of plant breeding. By A. Akerman, I.Granhall, G. Nilsson Leissner, A. Muntzing, and O. Tedin. Stockholm, Sweden, A. Bonniers, 1938. 110p.
- Tillage. By J.S. Cole and O.R. Mathews. In Soils & men; Yearbook of agriculture, 1938. p. 321-328.

Air Conditioning.

Theory of evaporative cooling. By W.S. Bodinus. Heating, Piping and Air Conditioning. v. 10, no. 8. August, 1938. p. 531-532.

Alcohol Fuel.

- Alcohol from the farm. By Wilbur Fiske. Compressed Air Magazine. v. 43, no. 6. June, 1938. p. 5627-5630. Discussion of Atchison Agrol company project sponsored by Chemical foundation, inc.
- Power alcohol production in Australia. International Sugar Journal. v. 40, no. 475. July, 1938. p. 252.
- Technical characteristics of alcohol-gasoline blends. New York, American petroleum institute, 1938. 15p. American petroleum institute. Committee on motor fuels. Motor fuel facts series. No. 1.

Belting.

Flat rubber belting drives. By Francis Juraschek. Industrial Power. v. 35, no. 4. October, 1938. p. 107-109. Fundamental information on this type of belting is given, elements of three basic types described, and brief case stories included.

Boilers.

A.S.M.E. boiler construction code, 1937. Combined ed. New York, American society of mechanical engineers, 1937. 8 sections.

Building Construction.

Construction activity in the United States, 1915-37. Washington, U.S. Govt. print. off., 1938. 93 p. U.S. Bureau of foreign and domestic commerce. Domestic Commerce series no. 99. Farm Construction. p. 13, 60.

Theory of continuous structures and arches. By C.M. Spofford. New York, McGraw-Hill book company, inc., 1937. 267 p.

Trellised entrances. Pencil Points. v. 19, no. 8. August, 1938. p. 515-522.

Walls molded flat, then raised. American Builder and Building Age.
v. 60, no. 9. September, 1938. p. 66-67, 100. Minimum framework,
low cost, and great architectural flexibility are claimed for recently
perfected system of casting reinforced concrete house walls horizontally, then tilting them into place. By this method 6-in. rectangular
walls up to 40 ft. in length have been successfully erected. Contractors who have used this "tilt-up" method of wall building in limited
way report savings from 10 to 30 percent in labor costs alone. The
"tilt-up" method of building walls consist simply in casting reinforced
concrete panels on previously placed concrete floors, erecting them,
and tying them together at corners by reinforced concrete columns. It
offers economy of factory made houses, but eliminates factory overhead.
Methods are based on two years of research by Portland Cement Associa

Building Materials.

Research on building materials and structures for use in low cost housing. By H.L. Dryden. Washington, U.S. Govt. print. off., 1938. 5p. U.S. National bureau of standards. Report BMS 1.

Research on materials and modern design. By A. Thum. Engineering. v. 146, no. 3785. July 29, 1938. p. 143-146.

Structural aluminum handbook. Pittsburgh, Pa., Aluminum company of American, 1938. 211 p.

Chemistry, Technical.

Chemurgy and modern agriculture. By A.P. Yerkes. Harvester World. v. 29, nos. 7-8, July-August 1938. p. 8-10.

Destructive distillation of corncobs. By T.R. McElhinney, B.M. Becker and P. Burke Jacobs. Industrial and Engineering Chemistry. v. 30, no. 6. June, 1938. p. 697-701. Destructive distillation of farm wastes has been often suggested as one method of commercial utilization. This report characterizes exothermic reaction which takes place after exothermic point is reached for destructive distillation of corncobs, points out optimum temperature for running this reaction, as applied to this particular material, shows volumes of gases evolved when reaction temperature is kept at several different points, and shows vary-

Chemistry, Technical

ing composition of these gases and amounts of other primary products obtained in destructive distillation of corncobs. These scientific facts must first be determined by any investigator before he enters into study of amount of secondary products recoverable, and certainly before economic evaluation of destructive distillation as method for commercial utilization of agricultural wastes can be made. Results reported apply generally to similar agricultural wastes.

New industrial uses for farm crops. By H.E. Barnard. Refrigerating Engineering. v. 36, no. 3. September, 1938. p. 155, 158, 194-195. Predicts greatly increased use of farm crops in industrial manufacture. Soybeans, sugars, starches may appear eventually in products ranging from plastics to motor fuel oil, thus affording farmer vastly larger market for his crops.

Coal Bins.

Design of a modern coal bin. By K. R. Hare. Heating & Ventilating. v. 35, no. 7. July 1938. p. 25. Whole thing is installed for approximately five dollars.

Cold Storage Plants.

Blower operation in farm cold storage. By R.M. Smock and S.R. Shapley. Refrigerating Engineering. v. 36, no. 2. August 1938. p. 92-94.

Cold storage of fruits and vegetables. Ice and Refrigeration. v. 95, no. 3. September, 1938. p. 197-200. Essential storage requirements of the most important varieties of fresh fruits and vegetables intended for storage.

Crop storage on the farm. By H.B. White. St. Paul, Minn., 1938. lp. University of Minnesota. Agricultural extension division. Agricultural engineering news letter. no. 77.

Colorado River Basin.

Colorado delta. By Godfrey Sykes. Washington, D.C., Pub. jointly by Carnegie institution of Washington and the American geographical society of New York, 1937. 193 p. Bibliography.

Combines.

Adaptability of certain varieties of oats to harvesting with combine. By I.D. Mayer. In fiftieth annual report of Purdue university, Agricultural experiment station for year ending June 30, 1937. Lafayette, Ind., n.d. p. 15.

Small combine makes short work of Ohio big wheat harvest. By Vance Bell. Ohio Farmer. v. 182, no. 3. July 30, 1938. p. 4.

What's ahead for combines? Implement & Tractor. v. 53, no. 16. August 6, 1938. p. 14-15.

Community Buildings.

Community buildings for farm families. By Blanche Halbert. Washington, D.C., 1938. 41 p. U.S. Department of agriculture. Farmers bulletin no. 1804.

Concrete.

Concrete manual: A manual for the control of concrete construction. 1st ed. Denver, Colo., U.S. Bureau of reclamation, 1938. 454 p.

Condensation.

Condensation in walls and attics. By L. V. Teesdale. Madison, Wisc., Forest products laboratory, 1937. 9p. Mimeographed. Published in American Builder & Building Age. December 1937.

Conservation of Resources. .

Conservation and use of soil moisture at Mandan, N. Dak. By J.C.
Thysell. Washington, U.S. Govt. print. off., 1938. 40p. Bibliography. U.S. Department of agriculture. Technical bulletin no. 617.

Problems of conserving and utilizing our agricultural resources. By Lowry Nelson. Logan, Utah, n.d. 77-79 p. Reprinted from Utah Academy of Sciences, arts and letters. v. 14, 1937.

That soils and waters may remain permanent assets. By D.S. Myer. Soil Conservation. v. 4, no. 2. August 1938. p. 35-37, 53.

Corrosion.

Corrosion and self protection of metals. By R.E. Summers. Industrial Power. v. 35, no. 3. September, 1938. p. 39-41. Presents very practical facts concerning metallic corrosion and describes factors in resistance of metals to various agencies of corrosion.

Some factors affecting the corresion of metals. By R.E. Summers.
Industrial Power. v. 35, no. 4. October, 1938. p. 45-48.
Describes influences that alter simple driving force of metallic corresion as expressed by potentials of electrochemical series.

Cotton.

Cotton in Peru. By J. Legros. Monthly Bulletin of Agricultural Science and Practice. v. 29, no. 7. July, 1938. p. 263-T = 278-T.

The No-control cotton plan. Adapted from an address by I.W. Duggan, at Little Rock, Ark., August 5, 1938. Washington, U.S. govt. print. off., 1938. 15 p. U.S. Dept. of agriculture. Agricultural adjustment administration 38-Cotton-4.

Cotton Gins and Ginning.

Modernizing cotton gins. By C.A. Bennett, T.L. Baggette, and F.L. Gerdes. Washington, D.C., 1938. 52 p. U.S. Department of agriculture. Farmers' bulletin no. 1802.

Cotton Machinery.

- Better cotton quality by better harvesting and ginning. By Francis L. Gerdes and Charles A. Bennett. Cotton and Cotton Oil Press. v. 39, no. 33. August 13, 1938. p. 3-6, 10.
- Cosecha mecanica del algodon. Vida Agricola. v. 15, no. 176. July 1938. p. 543, 545, 547, 551, 553, 555-558. Cotton harvesting machinery. Results of tests carried out in Argentina. Illustrations.
- Cotton harvesting and handling. By F.L. Gerdés, W.J. Martin and C.A. Bennett. Cotton Ginners' Journal. v. 10, no. 1. October, 1938. p. 7, 10-12.
- Evolution of mechanical cotton harvester. By E.A. Johnston. Agricultural Engineering. v. 19, no. 9. September, 1938. p. 383-385, 388. While it is reasonable to assume that demand for mechanical cotton harvesters will be stimulated by increasing scarcity of hand pickers, high and increasing cost of hand picking, and necessity of reducing cost of production, author emphasizes strongly his belief that this demand will continue a long time before mechanical harvesters are used in sufficient numbers to affect seriously the labor situation in cotton-growing areas.
- Machine cotton pickers demand rebuilt fields. Science News Letter.
 v. 34, no. 6. August 6, 1938. p. 95. Experimental data indicate that available soil moisture which can be utilized for plant growth may be increased as much as 50 percent as result of level terracing with contour tillage. This increased available moisture has shown average increased production of lint cotton for eleven year period sufficient to pay initial cost of land at \$50 an acre, cost of terracing, and still have money left over for dividends.
- Mechanical cotton harvesting experience in California. By H.B. Walker. Agricultural Engineering. v. 19, no. 9. September, 1938. p.392.
- Progress in mechanical harvesting of cotton. By H.P. Smith. Agricultural Engineering. v. 19, no. 9. September, 1938. p. 389-391.
- Relation of mechanical harvesting to production of high grade cotton.

 By Charles A. Bennett. Farm Implement News. v. 59, no. 17. August 25, 1938. p. 18-19.
- Relation of mechanical harvesting to the production of high-grade cotton. By Charles A. Bennett. Agricultural Engineering. v. 19, no. 9. September, 1938. p. 386-388.
- Some needs in cotton harvesting development. By W. Waterman. Agricultural Engineering. v. 19, no. 9. September, 1938. p. 393-394.

Dairy Farm Equipment.

Stalls for experimental lamb feeding. By T.B. Keith and J.E. Nicholas. Agricultural Engineering. v. 19, no. 7. July, 1938. p. 314.

Dams.

- Alcova dam. By John A. Beemer. Reclamation Era. v. 28, no. 8. August, 1938. p. 167-169.
- Design of rock-fill dams: Discussion. By L.R. East, and Francisco Gomez-Perez and Miguel Jinich. Proceedings of American Society of Civil Engineers. v. 64, no. 7. September, 1938. p. 1415-1429.
- Facts and figures on Grand Coulee. Power. v. 82, no. 10. October, 1938. p. 78-80.
 - Gallipolis dam. By C.E. Sherman. Engineering Experiment Station News Ohio State University. v. 10, no. 3. June, 1938. p. 8-10.
 - Moon Lake dam and reservoir--Moon Lake Project, Utah. By E.J. Wester-house. Reclamation Era. v. 28, no.8. August, 1938. p. 164-166, 171.
- Sardis dam and reservoir project. Vicksburg, Miss. U.S. Engineer office, 1938. 6 p. Mimeographed.

Diesel Engines.

Diesel engine in America. By Karl W. Stinson. Engineering Experiment Station News - Ohio State University. v. 10, no. 3. June, 1938. p. 7-8.

Drainage.

- Drainage in arid regions. By James Thorp and C.S. Scofield. In Soils & men; Yearbook of agriculture, 1938. p. 717-722.
- Drainage in the humid regions. By J.R. Haswell. In Soils & men; Yearbook of agriculture, 1938. p. 723-736.
- Land drainage: Account of river improvement works and works of coast protection in the river Ancholme and Winterton Beck Catchment Area. By A.R. Haynes. Journal of the Ministry of Agriculture. v. 45, no.4. July 1938. p. 338-343.

Droughts.

Drought of 1936. By J.C. Hoyt. Washington, U.S. Govt. print. off., 1938. 62p. U.S. Geological survey. Water-supply paper 820.

Drying (Crops)

Dehydrated vs. sun-dried alfalfa. Grain & Feed Journals. v. 80, no.12. June 22, 1938. p. 547.

Drying (Crops)

Dehydrating to recover farm gold. By Norman J. Urquhart. Michigan Farmer. v. 161, nc. 2. July 16, 1938. p. 3, 12.

Dehydration of fruits. By E. M. Mrak. Agricultural Engineering. v. 19, no. 8. August, 1938. p. 349-352. Great advantages of dehydration over sun drying are: (1) it produces dried fruit of better quality than is obtained by sun drying; (2) yield of dried product is greater than when fruit is dried in the sun because of smaller losses resulting from fermentation and respiration; (3) it is an insurance against rain damage losses; (4) it reduces drying time from several days to about one day; (5) it is much more sanitary than sun drying; (6) it is protection against infestation by field insects, and (7) total costs including fixed charges need not be greater than those of dry yard of equal capacity. Main disadvantage of dehydration is that it requires more skill than sun drying. Second disadvantage at present is that it is not possible by dehydration of such fruits as freestone peaches, apricots, nectarines, and pears to secure products similar in appearance to the sun-dried product, unless they are first exposed to sun for a day in order to fix the color of fruit.

Drying of hay in swath and windrow. By W.H. Cashmore and H.J. Denham. Journal of the Ministry of Agriculture. v. 45, no. 3. June, 1938. p. 211-220. Conclusions: Sufficient attention is not paid to care of hay crop between mowing and collecting. It is possible to shorten field time and to obtain better product when effect of different atmospheric conditions is understood and treatment varied accordingly. There is tendency today to produce heavier hay crops by use of fertilizers, and method of haymaking that is satisfactory with light crops is useless with these heavier crops. Whether or not combine mower swath breaker is used, tending immediately after mowing to break up swath, and windrowing before evening to reduce effect of dew, is advantageous. It has been rightly argued that breaking up swath is harmful if rain intervenes. On other hand, by observing weather reports it should be possible in most seasons to mow with two fine days ahead. By hastening process hay can be made dry enough to put into cocks in very short time and so method has its advantages even in wet season.

How to make grass drying more universal. Implement & Machinery Review. v. 64, no. 761. September 1, 1938. p. 580.

Seed corn drying tests. By R.H. Wileman. In fiftieth annual report of Purdue university, Agricultural experiment station for the year ending June 30, 1937. Lafayette, Ind., n.d. p. 18-20.

Electric Wiring.

Handbook of interior wiring design. 6th ed. New York, Industry committee on interior wiring design, n.d. 82p.

Electricity-Distribution.

- Distributors in rural areas. By J. McCombe. Electrical Review. v. 123, no. 3168. August 12, 1938. p. 213-214. Author aims at showing methods of low-voltage line construction which involve some measure of standardization in order to reduce costs to lowest level compatible with safety and satisfactory operation.
 - Electric plants offer power to everyone. Popular Mechanics Magazine. v. 69, no. 6. June 1938. p. 850-852, 136A, 139A.
- Thirtieth annual report of the Hydro-electric power commission of Ontario for the year ended October 31, 1937. Toronto, Can., T.E. Bowman, 1938. 520 p.

Electricity on the Farm.

- Electricity rates on the farm. By O.C. Stine. Agricultural Situation. v. 22, no. 7. September, 1938. p. 17-18.
- Electrification of agriculture and rural districts. By E.W. Golding. London, English universities press ltd., 1937. 244 p.
- Profile of farm electrification in America. By G.A. Rietz. Presented at the annual meeting of the American society of agricultural engineers, Asilomar, Calif., June 28, 1938. Schenectady, General electric co., 1938. 7 p. Processed.
- Rural electrification. In Fifty Years in the service of agriculture, 1888-1938. By the Missouri agricultural experiment station. Bulletin 397. p. 52.
- Rural electrification on the march. By the Rural electrification administration. Washington, U.S. Govt. print. off., 1938. 73p.
- Use of electric energy in brooding chicks. By T.E. Hienton. In fiftieth annual report of Purdue university, Agricultural experiment station for the year ending June 30, 1937. Lafayette, Indiana, n.d. p. 12.
- Wired labor vs. tired labor. Wallace's Farmer and Iowa Homestead. v. 63, no. 20. September 24, 1938. p. 10, 16. Discusses value of electricity in improving farm and home efficiency.

Engines.

Engine testing and test results. By R.L. Sweigert. Southern Power Journal. v. 56, no. 9. September, 1938. p. 39-43. What tests are for, how to make them, and how to interpret results.

Erosion Control.

Contour furrowing for pastures. In fifty years in the service of agriculture, 1888-1938. By the Missouri agricultural experiment station.

Bulletin 397. p. 49.

Erosion Control. (Cont'd)

- Corrugation furrows in the Smoky Hill River project. By W.R. Watson. Soil Conservation. v. 4, no. 3. September, 1938. p. 65-66.
- Denudation and soil erosion: Editorial. Engineering. v. 145, no. 3780. p. 711-712.
- General aspects of the soil erosion problem. By H.H. Bennett and W.C. Lowdermilk. In Soils & men; Yearbook of agriculture, 1938. p. 581-608.
- Mechanical measures of erosion control. By M.L. Nichels and T.B. Chambers. In Soils and men; Yearbook of agriculture, 1938. p. 646-665.
- Relation of drainage to erosion control. By J.H. Neal. St. Paul, Minn., 1938. 1 p. University of Minnesota. Agricultural Engineering news letter. No. 78.

Evaporation.

Experiments in evaporation of moisture from eggs in storage. By Eugene V. Toop. Ice & Refrigeration. v. 95, no. 2. August, 1938. p. 124-126.

Farm Buildings.

- Building improvements. In Fifty years in the service of agriculture, 1888-1938. By the Missouri agricultural experiment station. Bulletin 397. p. 50.
- Extension bulletins on farm buildings, Northeastern states. Compiled by S.P. Lyle. Washington, D.C., 1938. 12 p. U.S. Department of agriculture. Extension service. Miscellaneous extension publication no. 46. Mimeographed.
 - If you are building an extra orib. Wallaces' Farmer and Iowa Homestead. v. 63, no. 18. August 27, 1938. p. 1, 10.

Farm Income.

- Farm cash income grows. By Charles F. Collisson. Northwest Farm Equipment Journal. v. 52, no. 9. September, 1938, p. 32-33.
- Official estimates of farm income. Farm Implement News. v. 59, no. 18. September 8, 1938. p. 53.

Farm Labor.

Changes in technology and labor requirements in crop production; Corn. By L. K. Macy, L.E. Arnold, and E.G. McKibben. Philadelphia, Pa., 1938. 181 p. Processed. Works progress administration, National research project. Report no. A-5.

Farm Labor. (Cont'd)

Hired labor requirements on Arizona irrigated fars. By E.D. Tetreau.
Tucson, Ariz., 1938. 187-217 p. Arizona. Agricultural experiment station. Bulletin no. 160.

Farm Machinery and Equipment.

- Annual statistical data on industry. Implement & Tractor. v. 53, no. 16. August 6, 1938. p. 17-22, 31-42.
 - Combined seed drill and duster. By H.M. Leake and W.A.R. Dillon Weston.

 Journal of the Ministry of Agriculture. v. 45, no. 4. July, 1938.
 p. 344-350.
 - Corn stalk coverage. By R.H. Wileman. In Fiftieth annual report of Purdue university, Agricultural experiment station for the year ending June 30, 1937. Lafayette, Ind., n.d. p. 18.
- Efficiency in use of farm machines. In Fifty years in the service of agriculture, 1888-1938. By the Missouri agricultural experiment station. Bulletin 397. p. 52.
- Energia mecanica para la pequena agricultura y horticultura. Revista de la Ascciacion rural del Uruguay. v. 65, no. 5. May 1938. p. 31-32. Mechanical power for small-scale farming and gardening. Illustrations.
- Falkiner harvester for Hawaii. Facts About Sugar. v. 33, no. 3. March, 1938. p. 54.
- Farm equipment census. Better Farm Equipment and Methods. v. 11, no. 1. September, 1938. p. 4-5. Manufacture and sale of farm equipment compared with years 1935 and 1936.
 - Federal Commission report. Northwest Farm Equipment Journal. v. 52, no.8. August, 1938. p. 23-26. Federal Trade Commission issues complete report on agricultural implement and machine investigation.
 - Husking hybrids with machines. Wallaces' Farmer and Iowa Homestead. v. 63, no. 17. August 13, 1938. p. 46, no. 54. Department summarizes advantages of machine picking as follows: 1. Mechanical picker reduces amount of labor under that needed in hand husking. 2. Husking may be started earlier and completed in shorter time. 3. Work is easier and more pleasant. 4. Larger acreage of corn can be handled with given amount of labor.
 - King of tools. By J.J. O'Brien. Better Farm Equipment and Tools. v. 11, no. 1. September, 1938. p. 6-7, 24-25. Interesting and instructive history of the development of present day lathe.
 - Low corn cutting demonstrations. By R.H. Wileman. In Fiftieth annual report of Purdue university, Agricultural experiment station for the year ending June 30, 1937. Lafayette, Ind., n.d. p. 18.

Farm Machinery & Equipment. (Cont'd)

Machine-made potatoes. By Emil Rauchenstein. Agricultural Situation.

v. 22, no. 9. September, 1938. p. 20-21. Mechanization in potato farming has probably increased more in Central New Jersey in recent years than in most other potato areas. Acreage and production have been expanded; hours of man labor per acre have been reduced; cost of production per acre has been lowered. One disadvantage of highly specialized and mechanized potato farming is large proportion of cash expense to total expense. Another point is probable effect on soil humus. It is still undetermined whether potatoes can be grown on same land year after year with only winter cover crops to supply humus.

Mower replaces plow. Southern Planter. v. 99, no. 8. August, 1938. p. 5, 25.

Power saw is run by tractor with takeoff attachment. Popular Mechanics Magazine. v. 69, no. 5. May, 1938. p. 647. Operated by power takeoff attachment on tractors, a new drag saw cut logs into blocks for splitting into fuel. One man, working power saw, accomplishes results of ten men using cross-cut saws.

Spring trip cultivator shanks. By A.W. Clyde. Agricultural Engineering. v. 19, no. 7. July, 1938. p. 315-316.

Tillage machinery. By R.B. Gray. In Soils & men; Yearbook of agriculture; 1938. p. 329-346.

Unbending backs at threshing time. Wisconsin Agriculturist & Farmer. v. 65, no. 15. July 16, 1938. p. 9, 11.

What do your machines cost to operate? Farmer-Stockman. v. 51, no. 15. August 1, 1938. p. 10. Gives table showing cost of service, depreciation, interest and repairs, annual cost and cost per day of use of farm machines.

Farm Plan.

Arranging the buildings in the farmstead. Brookings, S.D., 1937. 16 p. South Dakota state college. Extension service. Extension circular 363.

Farm Power.

Use of power in distribution. By S.H. McCrery and G.R. Boyd. Washington, D.C., 1938. 4 p. Reprinted from Seventh International management congress. Agriculture section.

Farmhouses.

Study of rural housing. By D.G. Carter. Fayetteville, Ark., 1938.
University of Arkansas. Agricultural experiment station. Bulletin no. 364. Bibliography, p. 31.

Fence Posts.

Durability of fence posts. In Fifty years in service of agriculture, 1888-1938. By Missouri agricultural experiment station. Bulletin 397. p. 49.

Fences, Blectric

Bibliography on electric fencing. Compiled by D.W. Graf. Washington, D.C., U.S. Bureau of agricultural engineering, 1938. 2 p. Typewritten.

Fertilizer Placement.

. Methods of applying fertilizers. By R.M. Salter. In Soils & men; Yearbook of agriculture 1938. p. 546-562.

Fertilizers.

Proceedings of the Fourteenth annual convention of the National fertilizer association held at White Sulphur Springs, W. Va., June 6, 7 and 8, 1938. Washington, D.C., Published by the Association, 1938. 119 p.

Proceedings of the Fourteenth annual convention of the National fertilizer association held at White Sulphur Springs, W. Va., June 6, 7 and 8, 1938. Washington, D.C., Published by the Association, 1938. 119 p.

Fire Protection.

Facts about fire. Boston, Mass., National fire protection association. 1938. 15p.

Flax.

Progress report of chief officer, Division of economic fibre production for years 1934 to 1936. By R. J. Hutchinson. Ottawa, Can., 1938.

18 p. Dominion of Canada. Department of agriculture. Dominion experimental farms.

Floods and Flood Control.

Colorado river flood, July-August, 1938. Report of State board of water engineers to Senate investigating committee of \$\mu_15\$th Legislature. Lustin, Texas, State board of water engineers, 1938. 36 p. Mimeographed.

Flood routing: Discussion: By E.L. Myers and Ralph W. Powell.

Proceedings of American Society of Civil Engineers. v. 64, no. 7.

September, 1938. p. 1468-1474.

Floods in New England in 1936. Engineering. v. 145, no. 3780. June 24, 1938. p. 700-701.

Study in flood waves. By E.E. Moots. Iowa City, Ia., The University, 1938. 24 p. University of Iowa studies. Studies in engineering. Bulletin 14.

Floods and Flood Control. (Cont'd)

Technical memorandum on Colorado river flood of July 1938. By
Abraham Streiff. Fort Worth, Tex., 1938. 9 p. Mimeographed.
Bound with Colorado river flood, July-August, 1938. Report of the
State board of water engineers to the Senate investigating committee
of the 45th legislature.

Yazoo basin, Mississippi; Proposed plan of flood control. Vicksburg, Miss., U.S. Engineer office, 1938. 7 p. Mimeographed.

Floors.

Calves thrive on wire floor. Wisconsin Agriculturist and Farmer.
v. 65, no. 18. August 27, 1938. p. 11. Claves are kept on wire screen floors with less labor and at lower cost than by ordinary regular plan.

Selection, installation, finish, and maintenance of wood floors for dwellings. By R. K. Helphenstine, jr. Washington, U.S. Govt. print. off., 1938. 26 p. U.S. Department of agriculture. Circular no. 489.

Flow of Water.

Ohio stream flow. By C.V. Youngquist. Engineering Experiment News-Ohio State University. v. 10, no. 3. June, 1938. p. 21-22. Some limitations of unit hydrograph method of estimating surface water run-off.

River flow problems. By Herbert Chatley. Engineering. v. 146, no. 3783. July 15, 1938. p.61-62. Principally based on experience with Whangpoo and Yangtse rivers in China.

River flow problems. Part 2. By Herbert Chatley Engineering. v. 146. no. 3786. August 5, 1938. p. 165-166.

River flow problems. By Herbert Chatley. Engineering. v. 146, no. 3788. August 19, 1938. p. 223-224. V. Delta formation.

Flumes.

Laboratory investigation of flume traction and transportation: Discussion. By J.E. Christiansen and W.H. Huang. Proceedings of American Society of Civil Engineers. v. 64, no. 7. September, 1938. p. 1432-1437.

Large delivery lines for the Colorado river aqueduct system. By Julian Hinds. Civil Engineering. v. 8, no. 7. July 1938. p. 469-472.

Forage Crops.

Grass silage harvesting methods. By Frank H. Hamlin. Agricultural Engineering. v. 19, no. 7. July, 1938. p. 311-314. Harvest-

Forage Crops. (Cont'd)

ing, storing and feeding uncured hay crops as silage offer following important advantages: 1. Delays and losses due to weather are largely eliminated. 2. Cost of providing cubic foot of storage space in hay mow and in silo is about same, but average cubic foot of silo space will store over three times as much dry matter as average cubic foot of mow space. 3. Silage is not subject to spontaneous combustion, which, in stored hay, annually accounts for fire loss in United States of more than twenty million dollars. 4. Given amount of roughage dry matter can be fed with somewhat less time and labor in form of silage than in form of whole, dry hay. 5. Considerably less dust and less feeding waste are associated with grass silage than with dry hay.

Suggested research program for hay and other harvested forage, parts 1 and 2. Prepared by Interbureau forage committee of U.S. Department of agriculture. Washington, D.C., 1938. 75 p. Mimeographed.

Garden Houses.

Garden structures. Architectural Record. v. 84, no. 3. September, 1938. p. 79-86.

Grain Elevators.

Operating problems of farmers' elevators in Nebraska. L.F. Garey. Lincoln, Neb., 1938. 29 p. University of Nebraska. College of agriculture experiment station. Bulletin 314.

Heating.

Electric house heating in Mason City. By O.G.F. Markhus. Reclamation Era. v. 28, no. 8. August, 1938. p. 149-150.

Flow of air through exhaust grilles. By A.M. Greene, Jr., and M.H. Dean. Heating, Piping and Air Conditioning. v. 10, no. 9. September, 1938. p. 619-626.

Heating, ventilating, air conditioning guide, 1938. New York, American society of heating and ventilating engineers, 1938. New York American society of heating and ventilating engineers, 1938. 1162 p.

Radiant heating today. By T.N. Adlam. Heating & Ventilating. v. 35, no. 7. July 1938. p. 22-25.

Houses:

Improvement of farm homes. In Fifty years in service of agriculture, 1888-1938. By the Missouri agricultural experiment station. Bulletin 397. p. 50.

Low-cost concrete home is built quickly. Popular Mechanics Magazine. v. 69, no. 5. May, 1938. p. 614-645. Homes have double exterior

Houses. (Cont'd)

walls, reinforced concrete partitions, moisture proof floors and prefabricated concrete roofs.

Methods of determining the structural properties of low-cost house constructions. By H.L. Whittemore and A.H. Stang. Washington, U.S. Govt. print. off., 1938. 18 p. U.S. National bureau of standards. Building materials and structures. Report BMS2.

Hydraulic Rams.

How to design and build hydraulic rams. Chicago, Ill., Technical service publishing company, 1938. Bulletin no. D-126. 11 p. Mimeographed.

Hydraulics:

Hydraulic laboratory of the Federal institute of technology. Zurich. Part 2. Engineering. v. 146. no. 3786. August 5, 1938. p. 149-151.

Road map of hydraulic engineering in Iowa. By E.W. Lane and Edward Scucek. Iowa City, Iowa, 1938. 13 p. University of Iowa studies. Studies in engineering. Bulletin 15.

Hydrology.

Hydrology of Virginia. Part 1, Annual rainfall and stream flow studies with an introduction to statistical methods of analysis. By P.H. Mc Gauhey. Blacksburg, Va., 1938. 113 p. Virginia polytechnic institute. Engineering experiment station. Bulletin no. 33.

New soils and hydrologic station begins operation. By George Buchanan. Farm & Ranch. v. 57, no. 12. June 15, 1938. p. 6. Brushy Creek watershed experiment in Falls County, Texas. This large-scale research project is one of ten in United States and will probably be only one in Southwest of its kind.

Insect Control.

Electrocution for dairy farm flies. By G.H. Dacy. Electricity on the Farm. v. 11, no. 8. August 1938. p. 14.

Insulation.

Insulation for the house. By E.W. Cheney and F.J. Schlink. Consumers' September, 1938. p. 35-44.

New insulation studies. By E.H. Queer and F.G. Hechler. Refrigerating Engineering. v. 35, no. 4. April, 1938. p. 247-252. Part II.

Suitability of fiber insulating lath as a plaster base. By L.S. Wells and D.C. Smith. Washington, U.S. Govt. print. off., 1938. 17 p. U.S. Bureau of standards. Building materials and structures. Report BMS3.

Insulation. (Cont'd)

Window conditioning - what it is, what it does. American Builder and Building Age. v. 60, no. 9. September, 1938. p. 68, 72, 102. Table shows fuel saved for each square foot of window area insulated with double glass under average conditions.

Irrigation.

- Civil engineers meet in Salt Lake City. Engineering News-Record. v. 121, no. 4. August 4, 1938. p. 153-155. Transportation, irrigation and water conservation, topics appropriate to region are discussed in Am. Soc. C.E. annual convention.
- Deep well irrigation. The cheapest well. By I.P. Tikiob. New Agriculture. v. 20, no. 11. August, 1938. p. 6-7.
- Irrigation; a selected bibliography. Compiled by D.W. Graf. Washington, D.C., U.S. Bureau of agricultural engineering, 1938, 631 p. Mimeographed.
- Irrigation development in United Provinces. Indian Engineering. v. 104, no. 2. August, 1938. p. 65.
- Irrigation in United States. By W.A. Hutchins, M.R. Lewis and P.A. Ewing. In Soils & men; Yearbook of agriculture, 1938. p. 693-703.
- Irrigation in Timber Lake area. Dakota Farmer. v. 58, no. 14. July 16, 1938. p. 295.
- Modern irrigation is big-scale business. Idaho, Farmer. v. 56, no. 17. August 18, 1938. p. 6.
- National Irrigation development. By Walker R. Young. New Agriculture. v. 20, no. 11. August, 1938. p. 7.
 - Soil, water supply, and soil solution in irrigation agriculture. By C.S. Scofield. In Soils & men; Yearbook of agriculture, 1938. p. 704-716.
 - Sprinkling system of irrigation has advantages. By W.L. Powers. Oregon Farmer. v. 61, nc. 16. August 4, 1938. p. 13.

Labor.

- Corn pickers and labor displacement. Farm Implement News. v. 59, no.17. August 25, 1938. p. 19, 27. Discussion of report by Works Progress administration.
- Seasonal labor requirements for California crops. By R.L. Adams.

 Berkeley, Calif., 1938. 28p. University of California. Agricultural experiment station. Bulletin 623.

Land Utilization.

Rural land use activities in Missouri. By R.J. Silkett. Columbia, Mo., 1938. 18 p. University of Missouri. Agricultural experiment station. Bulletin 399.

Lighting.

Evolution of the lamp. Pennsylvania Farmer. v. 119, no. 3. July 20, 1938. P. 11. Illustrations.

Time-saving value of good lighting. Agricultural Engineering. v. 19, no. 9. September, 1938. p. 403.

Lime.

Making lime on the Farm. By N.A. Kessler. Washington, U.S. Govt. print. off., 1938. 20 p. U.S. Department of agriculture. Farmers' bulletin no. 1801.

Milk Cooling.

Going to build a cooler? Arizona Producer. v. 17, no. 6. June 1, 1938. p. 13. Tests made by U. of A. engineers show way to best, results at least expense.

Insulated tanks for milk. Wallaces' Farmer and Iowa Homestead. v. 63, no. 16. July 30, 1938. p. 9.

Milk cooler characteristics. By N.L. Swyler. Refrigerating Engineering. v. 36, no. 2. August 1938. p. 95-96.

Requirements of farm electric milk coolers. By J.E. Nicholas. Refrigerating Engineering. v. 36, no. 2. August 1938. p. 100-102. Principal requirements of farm electric milk cooler are: 1. Cool milk rapidly. 2. Cool milk uniformly. 3. Provide water agitation to promote rapidity and uniformity of cooling. 4. All operating features should be automatic.

Miscellaneous.

Consumer incomes in United States: their distribution in 1935-36.

National resources committee. Washington, D.C., U.S. Govt. print.

off., 1938. 104 p.

Engineer describes method he uses for filing technical articles and papers. Heating, Piping and Lir Conditioning. v. 10, no. 9. September, 1938. p. 597-598.

Engineering's part in the development of civilization. By Dugald C.
Jackson. Mechanical Engineering. v. 60, no. 9. September, 1938.
p. 703-708. III. Unfolding of community life and commerce under influence of engineering.

Miscellaneous. (Cont'd)

- Engineering's part in development of civilization. By Dugald C. Jackson. Mechanical Engineering. v. 60, no. 8. August, 1938. p. 619-624. Civilization and engineering at the dawn of history: a summary.
- Forest resources of North-Louisiana delta, By R.K. Winters, J.A. Putnam and I.F. Eldredge. Washington, U.S. Govt. print. off., 1938. 48 p. U.S. Department of agriculture. Miscellaneous publication no. 309.
- Fourth annual report of Federal housing administration for year ending December 31, 1937. Washington, U.S. Govt. print. off., 1938. 117 p.
- Machine tools in America. By J.W. Roe. Journal of the Franklin Institute. v. 225, no. 5. May 1938. p. 499-511.
- Physical theory in engineering language. By C.A. Norman. Columbus, Ohio, 1938. 16p. Ohio state university. Engineering experiment station. Circular no. 35.
- Sheet metal workers' manual. By L. Broemel and J.S. Daugherty. Chicago, Frederick J. Drake & Co., 1938. 542 p.

Models.

- Observed effects of geometric distortion in hydraulic models: Discussion. By Herbert W. Ehrgott. Proceedings of American Society of Civil Engineers, v. 64, no. 7. September, 1938. p. 1517-1523.
- Some observations on behavior of models of gully control structures.

 By H.B. Roe. Agricultural Engineering. v. 19, no. 8. August,
 1938. p. 359-362, 364. Paper is based on studies carried out in
 early spring of 1935 as result of experience of soil erosion control
 wing of ECW in Minnesota during two years just preceding.
- Use of models for structural design. By James R. Griffith. Agricultural Engineering. v. 19, no. 8. Lugust, 1938. p. 355-358. Models are only one special tool for applying principles of deflection to structure. They are no panacea for all difficulties of structural design, for, like most tools, they have their limitations. Well-equipped engineer should be able to use that method best suited to difficulties of problem in question.

.Motor Fuel.

- Cooperative fuel research motor-gasoline survey, Winter 1937-38.

 Compiled by E.C. Lane. Washington, D.C., U.S. Bureau of mines, 1938. 29p. Processed.
- Solvent extraction of Diesel fuels. By C.G. Dryer, J.A. Chenicek, Gustav Egloff and J.C. Morrell. Industrial & Engineering Chemistry. v. 30, no. 7. July, 1938. p. 813-821. Solvent extraction of cracked Diesel fuels with sulfur dioxide and Furfural produced

Motor Fuel. (Cont'd)

raffinates with improved ignition quality without materially affecting other physical properties. Improvement depended upon solvent, percentage removed, and method of extraction. Raffinates showed unchanged susceptibility to pour-point depressant. Extracted portions had high octane blending values and low pour points. Extraction of straight-run fuels caused less improvement in ignition quality than solvent treatment of cracked fuels. Acid treatment resulted in negligible increase in ignition quality. Hydrogenation of fuels of low sulfur content produced fuels of high ignition quality.

Substitute motor fuels in France. Automotive Industries. v. 79, no. 11. September 10, 1938. p. 328-332.

Motors, Electric

Filling the silo with 5 and $7\frac{1}{2}$ H.P. motors. Electricity on the Farm. v.11, no. 9. September, 1938. p. 6-7, 15.

Method of successive approximations in electrical design. Part 1.

General considerations, and design of a magnetizing coil. By N.M.

Oboukhoff. Stillwater, Okla., 1938. 14 p. Oklahoma agricultural and mechanical college. Division of engineering. Publication no. 36.

Transformer principles and practice. By J.B. Gibbs. 1st. ed. New York, McGraw-Hill book company, 1937. 210 p.

Orchard Heaters.

California orchard heating statistics. By Floyd D. Young. California Citrograph. v. 23, no. 9. July, 1938. p. 371, 386, 388.

Engineering factors involved in orchard heating. By F.A. Brooks.

Mechanical Engineering. v. 60, no. 9. September, 1938. p. 677-681.

Plumbing.

Plumbing for the farm home. Part 1. By Norman J. Radder. Electricity on the Farm. v. 11, no. 9. September, 1938. p. 13-15.

Potatoes.

Production and certification of seed potatoes. By R.A. Jehle. College Park, Md., 1938. 32 p. Bibliography. University of Maryland. Extension service. Bulletin no. 83.

Poultry Houses and Equipment.

Nests and their care. Pullman, Wash., 1938. 6 p. State college of Washington. Extension service. Poultry pointers. no. 30.

Outdoor brooding of chicks. By A.R. Wood. Agricultural Engineering. v. 19, no. 8. August, 1938. p. 363-364.

Poultry Houses and Equipment. (Cont'd)

Planned poultry house. By Neal Brown. Successful Farming. v. 36, no. 8. August, 1938. p. 10, 47.

Pumps and Pumping.

Making rain by electricity. By R.E. Stephenson. California Cultivator. v. 85, no. 18. August 27, 1938. p. 525, 543.

Pyrethrum.

Pyrethrum flowers. Kenya, a better source. By V.A. Beckley, and others. Industrial & Engineering Chemistry. v. 30, no. 7. July, 1938. p. 835-838. Brief description of progress that has been made in developing new and better source of supply in Kenya.

Refrigeration.

Precooking eggs on the farm. By J.E. Nicholas. Refrigerating Engineering. v. 36, no. 2. August 1938. p. 103. Development of economic "egg air conditioner" is needed. It should have small precooling chamber as one of its desirable features.

Precocling fresh fruits in refrigerator cars. By T.E. Hienton. In Fiftieth annual report of Purdue university. Agricultural experiment station for year ending June 30, 1937. Lafayette, Ind., n.d. p.13.

Precooling vegetables by water spray. By R.L. Perry. Agricultural Engineering. v. 19, no. 9. September, 1938. p. 397-398.

Quick freezing of poultry. V.R.H. Greene. Refrigerating Engineering. v. 36, no. 2. August 1938. p. 97-98.

Refrigerator Lockers.

Lockers provide strawberries at Christmas. Dakota Farmer. v. 58, no. 14. July 16, 1938. p. 294-295.

Refrigerated food lockers; a new cooperative service. By L.B. Mann. Washington, D.C., 1938. 30 p. Bibliography: p. 30. Farm credit administration. Cooperative division. Circular no. C-107.

Refrigerator locker systems on the way. By J.H. Frandsen. American Agriculturist. v. 135, no. 18. August 27, 1938. p. 12.

Research.

Administration of research: A selective bibliography. Compiled and annotated in U.S. Forest service library. Washington, D.C., 1938. '26 p. Mimeographed.

Analysis of agricultural engineering research. By E.A. Silver. Agricultural Engineering. v. 19, no. 9. September, 1938. p. 405-406.

Research. (Cont'd)

W.P.A. National research project. By Herbert P. Negus. Mechanical Engineering. v. 60, no. 8. August, 1938. p. 625-626.

Indicates scope and perspective of project, and presents findings of some reports which have so far been released.

Rice.

Effect of date of harvest on yield and milling quality of rice. By W.D. Smith and others. Washington, D.C., 1938. 20 p. U.S. Department of agriculture. Circular no. 484.

the state of the s

Roofs.

Metal shingle roofing. By W.C. Harrington. Amherst, Mass., 1938.
4 p. Massachusetts state college. Extension engineering series, no. 62. Mimeographed.

Two ways to make a silo roof. Washington Farmer. v. 63, no. 18. September 1, 1938. p. 12.

Rubber.

History of rubber as an engineering material. By William C. Geer.

Mechanical Engineering. v. 60, no. 9. September, 1938. p. 682685. Discussion is limited to some of high points of history of rubber compounding with especial object of showing why it has been possible only within recent years to use rubber as engineering materials, and why today it is possible to manufacture and use rubber successfully in a structure as component part upon which essential performance depends.

Sewage and Sewage Disposal.

Bibliography of technical articles. By W.G. Imhoff. Vineland, N.J., Wallace G. Imhoff, 1938. 12p.

West Virginia's rural sanitation program. By H.K. Gidley. Civil Engineering. v. 8, no. 9. September 1938. p. 599-600. Sanitary earth-pit privies built since 1933 improve health conditions for 700,000 persons.

Silt:

Adcanve report on sedimentation survey of Baker reservoir, Baker, Montana May 24 to June 6, 1937. By V.H. Jones. Washington, D.C., 1938.

15 p. Mimeographed. U.S. Department of agriculture. Soil conservation service.

Advance report on sedimentation survey of Hayes Lake, Hayes, South Dakota, June 8-15, 1937. By M.P. Connaughton. Washington, D.C., 1938. 28 p. Mimeographed. U.S. Department of agriculture. Soil conservation service.

Silt. (Cont'd)

- Advance report on sedimentation survey of Mission lake, Horton,
 Kansas, April 15 to May 6, 1937. By V.H. Jones. Washington, D.C.,
 U.S. Soil conservation service, 1938. 15 p. Mimeographed.
- Advance report on sedimentation survey of Wellfleet, Nebraska, May 10 to 19, 1937. By V. H. Jones. Washington, D.C., U.S. Soil conservation service, 1933. 16 p. Mimeographed.
 - Desilting works at Imperial dam. By D.M. Forester. Reclamation Era. v. 28, no. 8. August, 1938. p. 152-156. Gives typical cross section of effluent weir.
 - Force required to move particles on a stream bed. By W.W. Rubey.
 Washington, U.S. Govt. print. off., 1938. 141 p. U.S. Geological
 survey. Professional paper 189-E.
 - Stability of earthen channels. By A.N. Wilson. Indian Engineering. v. 104, no. 2. August, 1938. p. 67. IV. Other factors controlling regime dimensions.
 - Theory of silt transportation: Discussion. By Joe W. Johnson. Proceedings of American Society of Civil Engineers. v. 64, no. 7. September, 1938. p. 1524-1528.
- Transportation of sand and gravel in a four-inch pipe. By G.W. Howard. Proceedings of American Society of Civil Engineers. v. 64, no. 7. September, 1938. p. 1377-1391. Tests on 4-in. pipe, transporting water mixed with sand and small gravel, are described in paper. Although description of flow characteristics of sand and water mixtures and gravel and water mixtures in 4-inch pipr constitutes main part of paper, an attempt is made to generalize findings in regard to other sizes of pipe in so far as it is believed to be applicable. Discussion is given of existing general formulas for transportation of materials in pipe lines, and it is attempted to prove that type of material to be transported, and experience of designer should have more bearing on solution of problem than any solid-transportation formula now extant. No new formulas are presented. Insufficient number of investigations have been made to justify use even of formulas now in existence. Attempt is made, however, to consolidate all known facts concerning transportation of sand and water mixtures in order to show that, at present, only general characteristics can be determined for this phenomenon.

Snow Surveying.

Western States snow surveys. By Harry F. Blaney. California Cultivator. v. 85, no. 11. May 21, 1938. p. 323, 339.

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Soil Heating.

Temperature of soil heating cable in three different media. By John E. Nicholas. Agricultural Engineering. v. 19, no. 9. September, 1938. p. 404.

Soil Moisture.

Specific water conductivity of an artesian aquifer. By O.W. Israelsen and E.R. Morgan. Logan, Utah, 1938. 568-574 p. Bibliography. Processed. Reprinted from Transactions of the American geophysical union, eighteenth annual meeting, 1937.

Water relations of soils. By L.B. Olmstead and W.O. Smith. In Soils & men; Yearbook of agriculture, 1938. p. 897-910.

Soils.

Infiltration capacity of some Illinois soils. By R.S. Stauffer. Journal of American Society of Agronomy. v. 30, no. 6 June, 1938. p. 493-500. The work reported in paper has to do with one phase of moisture movement in solid, namely, infiltration capacity. The need for this type of information has become particularly pressing in recent years in connection with widespread soil and conservation efforts of the experiment stations and of Soil Conservation Service. Results reported in paper are in nature of progress report, as there are many problems of technic and interpretation which remain to be worked out as investigation progresses.

Solar Heat.

Figuring solar heat gains of buildings. By William Goodman. Heating, Piping and Air Conditioning. v. 10, no. 8. August 1938. p. 521-523.

Figuring solar heat gains of buildings. By William Goodman. Heating, Piping and Air Conditioning. v. 10, no. 9. September, 1938. p. 573-575.

Spray Removal.

Removal of lead spray residues from apples grown in Shenandoah Cumberland valley. By M.H. Haller and others. Washington, D.C., 1938. 32 p. Bibliography, p. 31. U.S. Department of agriculture. Technical bulletin no. 622.

Sprays and Spraying Equipment.

Disinfectants on the farm. By E.C. McCulloch. Pullman, Wash., 1938.
16 p. State college of Washington. Extension service. Bulletin 245.

Equipment for plant disease control. By V.H. Matthews. Agricultural Engineering. v. 19, no. 8. August, 1938. p. 353-354, 358.

Standards.

American standards year book 1938. New York, American standards association, 1938. 80 p.

Tentative standard specifications for laying cast-iron pipes. Journal of American Water Works Association. v. 30, no. 2. February, 1938. p. 215-241.